

What is claimed is:

1. A thin film formation apparatus for forming a thin film on a substrate, comprising:

a reaction chamber;

5 a gas introduction section for introducing a reactant gas into the reaction chamber;

an evacuation section for exhausting the reactant gas from the reaction chamber;

10 first and second planar electrodes provided in the reaction chamber;

first and second support members which respectively support the first and second electrodes in parallel relation;

a high frequency power source for applying high frequency power between the first and second electrodes; and

15 a heating section for heating one of the first and second electrodes;

wherein the substrate is placed on the heated electrode, and at least one of the first and second electrodes is supported movably in a direction of thermal expansion by the corresponding support member.

2. A thin film formation apparatus as set forth in claim 1, wherein the at least one of the first and second electrodes is partly fixed to the corresponding support member.

3. A thin film formation apparatus as set forth in claim 1, 25 wherein a portion of the at least one of the first and second

electrodes is fixed to the corresponding support member, and the other portion of the at least one electrode is supported movably in the thermal expansion direction by the corresponding support member.

5 4. A thin film formation apparatus as set forth in claim 1, wherein the first and second electrodes are supported horizontally and perpendicularly to a gravity direction by the first and second support members.

10 5. A thin film formation apparatus as set forth in claim 4, wherein the first and second support members each include a plurality of engagement members which are loosely engaged with a periphery of the corresponding electrode, the engagement members each including an engagement piece spaced horizontally from the periphery of the electrode, and
15 a support piece which supports a lower surface of the electrode.

6. A thin film formation apparatus as set forth in claim 4, wherein the first and second electrodes are generally rectangular, the first and second support members each including four
20 engagement members which support four corners of the corresponding electrode.

7. A thin film formation apparatus as set forth in claim 1, wherein the first and second support members are each composed of an insulative material.

25 8. A thin film formation apparatus as set forth in claim 7,

wherein the insulative material is one of glass, alumina and zirconia.

9. A thin film formation apparatus for forming thin films on substrates respectively, comprising:

5 a reaction chamber;

a gas introduction section for introducing a reactant gas into the reaction chamber;

an evacuation section for exhausting the reactant gas from the reaction chamber;

10 plural pairs of first and second planar electrodes provided in the reaction chamber;

first and second support members which respectively support the first and second electrodes in each of the pairs in parallel relation;

15 a high frequency power source for applying high frequency power between the first and second electrodes in each of the pairs; and

a heating section for heating one of the first and second electrodes in each of the pairs;

20 wherein each substrate is placed on the heated electrode in each of the pairs, and at least one of the first and second electrodes in each of the pairs is supported movably in a direction of thermal expansion by the corresponding support member.

10. A thin film formation apparatus as set forth in claim 9,

25 wherein at least one of the first and second electrodes in each of

the pairs is partly fixed to the corresponding support member.

11. A thin film formation apparatus as set forth in claim 9,
wherein a portion of at least one of the first and second electrodes
in each of the pairs is fixed to the corresponding support member,
5 and the other portion of the at least one electrode is supported
movably in the thermal expansion direction by the corresponding
support member.

12. A thin film formation apparatus as set forth in claim 9,
wherein the plural pairs of the first and second electrodes are
10 supported horizontally and perpendicularly to a gravity direction
by the first and second support members.

13. A thin film formation method which employs a thin film
formation apparatus as set forth in claim 1 for forming a thin film
on a substrate, the method comprising the steps of:

15 placing the substrate on the heated electrode;
supplying a reactant gas into the reaction chamber; and
applying high frequency power between the first and
second electrodes.

14. A thin film formation method which employs a thin film
20 formation apparatus as set forth in claim 9 for forming thin films
on substrates respectively, the method comprising the steps of:

placing each substrate on the heated electrode in each of
the pairs;
supplying a reactant gas into the reaction chamber;
25 applying high frequency power between the first and

second electrodes in each of the pairs.